Statement of Jolene M. Molitoris,
Federal Railroad Administrator,
U. S. Department of Transportation
before the
Senate Committee on Commerce, Science, and Transportation
Subcommittee on Surface Transportation
and Merchant Marine

February 25, 1998

Thank you, Madam Chairman, for your invitation to report on railroad safety. This is an important legislative year for rail transportation and railroad safety. First, this hearing opens the dialogue on railroad safety reauthorization. Second, reauthorization of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) presents the opportunity to carry forward the grade crossing safety improvement program, reinvented with important reforms that we have recommended in the Administration's "NEXTEA"[1] proposal. Third, the President's Budget for FY 1999 requests additional resources to help us implement new safety programs that we have been building with our partners. Fourth, the Administration's surface transportation safety bill includes important rail and hazardous materials safety proposals. The Federal Railroad Administration (FRA) looks forward to contributing ideas and data as the Congress considers these initiatives.

Today, I would like to describe--

- important advances in railroad safety,
- partnerships we have formed to make them possible,
- our current safety assurance initiatives,

[1]National Economic Crossroads Transportation Efficiency Act.

- key regulatory actions, and
- recent developments in highway-rail crossing safety programs.

Finally, I would like to ask for your continued support for the railroad safety program.

Although we last came before you for reauthorization in 1994, the full Committee held railroad safety hearings in 1996, prompted by several very serious accidents. The events of 1996 confirmed our conviction that we needed to make disciplined partnerships work for safety.

The work of safety is never done. However, I am pleased to report that we are making real progress that manifests itself in many ways, perhaps most fundamentally in a growing recognition by railroad managers that the culture of the railroad must change. If we are to accomplish rapid change and respond to service needs of the Nation while achieving a high level of safety, we must have a culture that affirms integrity, holds open lines of communication, encourages identification of safety hazards, and insists that what we say is what we will do every day, even when we are tempted to take the easy way out. I believe we are seeing the emergence of that kind of safety culture where it may not have flourished before, and it offers great hope for the future of American railroading.

At FRA, we are committed to the principles of the Government Performance and Results Act and the National Performance Review. We measure our success by the safety results we achieve rather than the number of activities we conduct. So before we explore recent program accomplishments, let's first look at the numbers.

The Safety Record

Between 1993 and 1996, we saw significant improvements in the major safety indicators. Our projections from 11 months of preliminary data for 1997 suggest further improvements. For example:

- Between 1993 and 1996, *train accidents* fell 6%.[2] For 1997, we project a further reduction of about 4% from 1996 levels (from 2,443 to 2,338), and a reduction in the rate from 3.64 to about 3.45 (per million train miles).
- From 1993 to 1996, *employee on-duty injuries* fell **40%** and the frequency of injuries fell **38%**. For 1997, we project a reduction from the 1996 level of about 10% (from 9,199 to 8,293) and an almost 11% reduction in the frequency that employees are hurt per 200,000 hours worked (from 3.66 to approximately 3.27).
- From 1993 to 1996, *crossing collisions* fell 13%. For 1997, we project an 8% drop from the prior year level (from 4,257 to 3,926).

---

[2]Numbers are exclusive of highway-rail crossing collisions that caused sufficient railroad property damage to qualify as a "train accident." With crossing collisions included, the reduction is 7% over the period 1993-1996.

- From 1993 to 1996, *crossing fatalities* fell 22%. For 1997, we project a 7% reduction from 1996 levels (from 488 to about 452).
- From 1993 to 1996, *crossing injuries* fell 12%. We estimate a 2% reduction from 1996 levels for 1997 (from 1,610 to 1,575).

After 9 fatalities to passengers in train accidents in 1996 (1 at Secaucus and 8 at Silver Spring), we experienced no passenger fatalities in collisions, derailments or other property-damage accidents in 1997. This is an important safety achievement, in view of the 300 million passenger trips provided by Amtrak and the commuter railroads each year. Four passengers did lose their lives in train incidents (in events such as jumping from a moving train) in 1997.

Yet, as I told the Railroad Safety Advisory Committee on January 27th, <u>*not all*</u> of the news is good. We felt that 1996 was a very unfortunate year for *employee fatalities* with 33, yet in 1997, we investigated 37 railroad employee fatalities that resulted from other than natural causes (two of which were homicides). Some of these deaths resulted from general hazards for which targeted solutions are difficult, such as the 7 fatalities to on-duty employees in motor vehicle incidents, most of which were off railroad property. However, the 12 employees killed in switching-related incidents and 7 killed in train collisions powerfully motivate us to find a prevention program that will eliminate these chronic rail safety results. Other fatalities involving industrial hazards in working conditions that are unique to the railroad industry are also high on our priority list. Our Acting Associate Administrator for Safety, George Gavalla, has formed a working group to explore the causes of fatalities to train and engine crews during switching operations. The group will seek to find remedies to the conditions and behaviors that have made

this a problem that has not been addressed with complete success since the inception of the industry.

From 1993 to 1996 *total fatalities* associated with railroad operations (including grade crossing and trespasser fatalities) fell 18.8%. For 1997 we project a 1% increase. This increase was generated by a significant rise in *trespasser fatalities*. In 1997, trespasser fatalities--for the first time--clearly eclipsed highway-rail crossing fatalities as the largest single component of fatalities in railroad operations. We currently project that trespasser fatalities will rise 13% from 471 reported in 1996 to 530 in 1997. In 1998, FRA will put renewed emphasis on finding solutions to trespassing that will fit the many forms in which it appears. Unlike many other railroad safety problems, trespassing is very much a local and regional issue that requires targeted solutions. This is a problem that in various parts of our Nation involves the homeless, immigrants, children, and other dimensions. It is also a problem sometimes made worse when the media make it appear that the tracks are a place for recreation. We are seeking to address each of these elements of the problem.

We should be able to substitute better year-end numbers for you as the spring unfolds, but the trends of 1997 are evident. Safety is improving where we have well-honed tools to address safety needs. Clearly, however, we still have much work to do, and we need fresh approaches to address challenges such as switchyard casualties and trespassing that have defied resolution in the past.

Partnerships Work for Safety

The people of the FRA work with enthusiasm and remarkable energy to drive safety risk toward our ultimate goal of zero. Four years ago, we realized that--if we were really going to

move toward our zero tolerance goal--we would need to find new ways of doing business. Our 400 safety professionals in the field were doing a great job of finding and addressing individual problems, but they often didn't have enough leverage or information to achieve solutions to systemic problems. Our small headquarters staff was straining to get rules and interpretations published, but faced opposition from all quarters--with some convinced we had gone too far, others equally confident that we had not gone far enough, and everybody sure they had no ownership of the product. FRA had often reached out to form *ad hoc* alliances for various purposes, but the agency had never been able to sustain the dialogue and joint effort.

Recognizing our problem, we sat down with all stakeholders in a series of roundtables, assessed the situation, and decided that a new direction was required. We proposed that working together might work for everybody, if we all listened carefully. First Secretary Peña and then Secretary Slater insisted that we work intermodally, as a Department, because partnerships begin at home. The results can be measured in agreements reached, actions taken, rules implemented, lives saved and injuries prevented.

Safety Assurance and Compliance Program

FRA's approach to safety assurance and compliance responds to the dynamic changes that characterize the evolving rail system. Thus far in the decade of the 1990s, freight traffic in ton miles has increased by about one-third. In the same time period, Class I rail employment has fallen 16%. The number of major railroads has declined drastically with successive mergers, presenting transitional and permanent challenges for safety management. The number of small railroads has continued to grow, and the Congress has required that we provide special assistance to small entities in carrying regulatory burdens. In recent years, new commuter rail service has

been added in Los Angeles, South Florida, on the Shoreline East in Connecticut, in Dallas-Ft. Worth, North San Diego County, and here in Washington, D.C.--and there is more to come. Growth in planning for high-speed rail has added a new dimension to safety issues attending intercity passenger service. Rapid change in technology has contributed to the challenge.

Meanwhile, the sheer size of the industry remains a challenge, with 20,000 locomotives, 1.2 million freight cars, and approximately 220,000 miles of track (including yards and sidings), 280,000 highway-rail crossings, and 8,880 units of passenger equipment. These assets are used by over 700 rail companies with over 265,000 employees.

Recognizing our need both to stay in touch with changes in this large industry and influence them more rapidly, in 1995 we initiated a fundamental reinvention of our field safety programs. During the past few years, FRA has aggressively enlisted the cooperation of rail labor and management to identify and correct safety concerns in the railroad industry. The most expeditious and responsive method of improving safe operating practices and procedures is to tap the knowledge and expertise of all affected stakeholders. To achieve this goal, FRA reoriented its safety program from a traditional unilateral approach in both policy and enforcement to an approach that is *data driven* and--while it retains traditional inspections and sanctions--includes a partnership approach.

The Safety Assurance and Compliance Program (SACP) brings together rail labor, railroad management and FRA to determine the root causes of systemic railroad safety problems. SACP is an outgrowth of President Clinton's directive to Federal regulatory agencies that their inspection and enforcement programs be designed to focus on safety results, not just collect fines.

SACP also incorporates the mandate of the Government Performance and Results Act to identify specific indicators that measure the overall success of the program.

SACP positions the Agency well to address the types of railroad safety issues that exist or may arise on today's and tomorrow's mega-railroads. Many of these issues cut across inspection territories and disciplinary lines. For example, the recent Burlington Northern/Santa Fe (BNSF) and Union Pacific (UP)/Southern Pacific (SP) mergers and the proposed acquisition of Consolidated Rail Corporation (Conrail) by Norfolk Southern and CSX Transportation (CSXT) all pose issues of how safety is affected by such things as the blending of different corporate cultures and reconciliation of different operating rules and practices, among many other changes influencing safety that occur in mergers. FRA is closely examining each of these systems to assure that safety is maintained and to look for opportunities to improve it. Similarly, current trends indicate continuing consolidation of steadily increasing amounts to railroad traffic, including transportation of hazardous materials and passengers, on a network of high-density lines. These kinds of developments call for new approaches and continuing innovation.

BNSF. Since early 1996, the Burlington Northern Santa Fe has worked with FRA and its labor organizations to pioneer SACP techniques. By 1997, the railroad was ready to extend the SACP process to its entire railroad. In January 1997, a joint labor/management/FRA SACP Task Force was formed to: (1) identify and recommend solutions to cultural issues which affect safety; (2) identify and recommend solutions to systemic safety issues; and (3) open lines of communication between labor organizations and senior railroad management. The following are select highlights of the results to date:

- **Grade Crossing Safety Program:** BNSF, in conjunction with FRA, developed a 10-year comprehensive "Highway-Railroad Grade Crossing and Trespasser Prevention Program." The program focuses on crossing closure, public education and enhanced law enforcement.
- **System-Wide Signal Software Upgrade:** Concerns regarding faulty signals in Montana (identified by labor and pursued by FRA) resulted in the correction of software at the BNSF Operations Center. *This prevented a potentially serious signal failure in over 400 signals.* A follow-up analysis by BNSF revealed a manufacturing signal system defect, which has been corrected by the manufacturer on a nation-wide basis for all railroads. This is the magnitude of increased safety that SACP can provide.
- **Employee Safety Empowerment:** A comprehensive "Employee Empowerment Safety Policy" and a "Fear and Intimidation" complaint resolution process, both authored by the SACP Task Force, were implemented system-wide in 1997. Combined, these programs allow employees to challenge and resolve work place safety issues while maintaining "whistle blower" type protections. Since harassment and intimidation are chronic employee complaints and difficult to eliminate by regulation, this SACP achievement is extraordinarily important.
- **Improved Discipline Policy:** Working with the SACP Task Force, BNSF established a new employee discipline policy. The railroad now focuses on individual behavior modification using coaching, counseling, and training, rather than punishment for safety-related and other types of infractions. In addition, all cases of significant discipline, i.e., suspensions and dismissals, are reviewed by senior management. This approach

emphasizes to management and employees that rules compliance is about preventing injuries and property damage, not just finding fault afterwards.

- **Fatigue Countermeasures Program:** Working with the SACP Task Force, BNSF has developed the most advanced "Fatigue Countermeasures Program" in the industry. The carrier has instituted a "strategic napping policy," a "10-hour rest period," and pilot programs for "assigned days off" and "calling windows." As these approaches succeed, employees will be empowered to take responsibility for their own fitness and have better tools to meet their safety responsibilities.
- **Improved Accident/Injury Reporting:** A comprehensive "Accident/Injury Reporting" audit conducted by FRA during the SACP process resulted in a defect reporting rate error on BNSF of less than 1 percent. This verified defect ratio reflects the sharp focus that the railroad has placed on improvement of reporting practices and is a true achievement. A quarterly review process has been established to monitor continued compliance with reporting requirements.

CSXT. CSXT has achieved significant improvements in train accidents and employee casualty rates over the past few years. However, following a series of five high-profile accidents, FRA conducted a comprehensive, multi-disciplinary SACP field inspection of the CSXT system in 1997. As a result of the SACP process, CSXT established joint labor/management/FRA "Functional Oversight Teams" to address safety issues for each railroad discipline. The Functional Oversight Teams report findings and recommendations to a joint labor/management/FRA "Executive Committee," which takes final corrective action. The following are select highlights of the results to date:

- **Discipline policy:** Working with the SACP Task Force, CSXT is reviewing its discipline policy with a view toward a more remedial and less punitive approach..
- **Locomotive Engineer Mentor Program:** The Brotherhood of Locomotive Engineers (BLE) and CSXT have joined forces to develop a mentor program (SENSE Program). Experienced locomotive engineers become mentors for new and inexperienced train service employees to inculcate safe work habits. Lack of experience in handling heavy trains and unusual situations is a prominent factor in many derailments and collisions.
- **Signal and Train Control Improvement Program:** Working with the SACP Task Force, CSXT will hire an additional 250 signal employees during 1998 and spend $66 million to improve signal system maintenance. Included are plans to eliminate outdated pole lines, a major SACP safety concern, and defects to numerous Grade Crossing Warning Devices identified in the FRA safety audit report (e.g., lamp voltage, visibility of flashing lights, upgrades in battery supply and cable size).
- **1-800 Crossing Hazard Call-In-Program:** As part of an agreement with FRA, CSXT is installing emergency information signs at all public highway-rail grade crossings. The signs list a toll-free telephone number where motorists may report stalled vehicles and malfunctioning warning devices.

Union Pacific. Following two years during which the Union Pacific consummated large mergers, 1997 became the year in which America's largest railroad discovered its own limitations. From a safety standpoint, the railroad became less than the sum of its parts. As some Union Pacific managers admit, with the benefit of hindsight, they did not make the preparations necessary to integrate the system and maintain adequate traffic flows. Changes that were

instituted were often too rapid or involved cuts that went too deep. This resulted in a variety of ills, including heavy stresses on employees and physical assets, distraction and dislocation of first-line managers, and more changes in the way the business was run than could be accommodated in that supercharged environment. These difficulties, as well, contributed to notable safety problems that were difficult to deal with, particularly as the service crisis unfolded.

During the first 8 months of 1997, UP experienced 6 serious train collisions (resulting in 5 crew fatalities) and 4 fatalities to employees in switching incidents. Recognizing that these ongoing problems could not be addressed as separate events, in late August, 1997, FRA launched a comprehensive SACP safety review of the UP. We deployed over 80 inspectors and specialists for an intensive, 24-hour-a-day system-wide safety assessment of UP's operations. In November, 1997, FRA sent another team of 87 Federal and state inspectors onto the UP for one week to ensure that the safety deficiencies identified in the initial review were being dealt with at the highest levels of the organization. In addition, we placed a program manager in the UP operations center for continuous liaison. In response to FRA's SACP review, six "working groups," consisting of representatives from FRA and from UP rail labor and management, began working to identify the causes of, and solutions to, systemic safety problems. The six working groups are: (1) Crew Management System, (2) Train Dispatching, (3) Fatigue, (4) Training, (5) Culture, and (6) Inspections and Testing. The following are select highlights of the results to date:

- **Supervision:** A SACP Working Group found that supervisors' workloads prevented them from effectively monitoring and evaluating their employees' performance,

particularly in train and engine service. UP hired 134 supervisory personnel and identified additional supervisory positions to be filled.

- **Staffing:** An analysis of staffing levels by a SACP Working Group provided evidence that the number of employees is not adequate to handle current and projected levels of traffic. As a result, the UP began hiring 1,000 employees to correct this issue.
- **Fatigue:** A SACP Working Group is studying and recommending solutions to fatigue-related issues. These include: napping, lodging, uninterrupted rest periods, education, improved crew utilization and scheduling. Staffing and contract preparations have been made, and employee education and awareness efforts begin this coming month. UP is also engaged in a hiring program to augment staffing in key crafts.
- **Dispatching Facilities:** A SACP Working Group has developed an Action Plan to improve dispatching operations, and implementation and refining of the plan is in progress. A revised dispatcher training program is in place, and the first class has completed the training. Workload and territory adjustments have been made on twelve dispatching desks at Omaha, and further realignments are planned.
- **Hours of Duty Record Keeping:** A SACP Working Group is monitoring the development of an electronic system to enable the UP to comply with Federal record keeping requirements (49 CFR Part 228) involving about 20,000 train and engine employees. The new system is designed to replace the manual system currently in use, which is of little help in planning for compliance with the requirements of the hours of services laws. Implementation of the program will be subject to FRA's approval and resolution of any additional labor concerns.

Conrail acquisition. Our efforts in the East have included an important look forward. As you know, CSXT and NS have proposed to acquire Conrail, divide the carrier's assets, and create two rail networks that will compete with one another throughout the eastern United States (a $10.2 billion acquisition with 58%/42% division of ownership of NS/CSXT, respectively). The Surface Transportation Board (STB) will determine whether the proposed transaction is in the public interest. Acting in a proactive capacity, the Department of Transportation indicated mid-year last year that it would for the "first time ever" conduct a formal safety assessment of a proposed mega-merger (Conrail) and include this issue in our filings with the STB.

In August 1997, FRA initiated its safety assessment of the NS/CSXT proposed acquisition by reviewing both applicants' proposed operating plans, and also performing an analytical safety risk assessment of some 61 affected line segments at CSXT/NS/Conrail. It was determined that CSXT and NS provided virtually no safety planning in their operating plans. In addition, there were at least four major route segments of the planned merger with projected safety risk increases of greater than 50%. This was during this same time period FRA was performing safety reviews of the service performance crisis and consequent safety issues on the Union Pacific. On October 21, 1997, DOT filed its findings with STB and recommended that the applicants be required to develop, for the first time ever, ***Safety Integration Plans (SIPs)***. The STB ordered CSXT and NS to develop SIPs within 30 days (which extended the merger- processing schedule by 45 days).

FRA immediately went to work to assist the railroads in effectively structuring their SIPs by developing ***Safety Integration Plan Guidelines***. These guidelines, covering 13 safety-critical areas (including corporate safety culture), were furnished to the railroads in early November 1997. With this information, the applicant railroads were able to quickly and diligently prepare

their planned merger safety actions and filed their completed SIPs with STB on the December 3 deadline.

Although their SIPs are considered complete for STB's purposes, both railroads have continued to work closely with FRA to identify additional timing (schedules) and resource allocations (workforce and dollars) for all of their SIP-specified safety action items. Both railroads responded with specific safety actions to be accomplished over a proposed three-year integration period. FRA plans to use these documented commitments, if the acquisitions are approved, to monitor progress of the implementation and fulfilment of the planned safety action items. The STB is expected to render its final written decision on the Conrail merger by July 23, 1998.

During the week of February 10, 1998, the Canadian National (CN) proposed to acquire Illinois Central (IC), presenting the next safety integration challenge. The $2.4 billion acquisition, if approved by the STB, will create the fifth largest railroad in the U.S. in terms of annual revenue ($3.7 billion). The network created will span nearly 19,000 miles from the Gulf of Mexico to the full east-west breadth of Canada. As a result of the recent Conrail merger safety assessment and the ongoing safety/service problems at UP/SP, FRA has already initiated an SIP rulemaking which is expected to apply to all future mega-mergers, including the proposed CN/IC merger.

Future Directions for SACP. During 1997, FRA also had SACP efforts active on Amtrak, Canadian Pacific, and other railroads. Further, FRA worked with the American Public Transit Association and the commuter railroads to develop System Safety Plans that will provide an important frame of reference for safety assurance efforts in the passenger rail environment over the next few years. Much of this work will continue in the current year.

Since March 1995, approximately fifty SACP reviews have occurred, and more than 100 systemic safety concerns have been identified. Many of these concerns were resolved immediately, while others require recurring follow-up. FRA is taking a pragmatic approach to development of the SACP process, learning from experience, and gradually building management tools that should continue to increase the SACP's effectiveness and efficiency. In addition to providing our own personnel with copies of the Report to Congress on the SACP, entitled ***Enhancing Safety Now and into the 21st Century*** (October 1996), we have issued guidelines for focused enforcement and have conducted extensive training. Currently, we are concluding work on improved means of providing uniform documentation of project objectives, status tracking, and accomplishments; and we are exploring ways in which SACP implementation can be improved.

We recognize that the SACP process needs to evolve to meet emerging needs. I believe we can find better ways to anticipate underlying trends and developments that may generate safety risk. Without question, FRA needs to focus its resources so that the issues selected for early attention are those with a high safety priority. Our post-audit of SACP action plan items needs to be well structured to verify follow-through. We need to ensure a continued balance between system-level action plans and routine inspections that can deal with localized, but serious safety problems. Even as we implement more effective procedures for SACPs, a team headed by one of our regional administrators is evaluating the strategic management of our field programs. FRA is committed to working on these issues to promote optimum use of our safety assets.

North American Rail Alertness Partnership

Our work on fatigue through SACP efforts, and our continued research into fatigue countermeasures, have convinced us that we need to make a broad assault on fatigue and its effects. As a result, recently we joined with major rail unions and passenger and freight railroads to establish a North American Rail Alertness Partnership (NARAP). Through NARAP, we can disseminate information and promote innovative approaches that permit employees to schedule their rest, take time when they need it to deal with cumulative fatigue, deal with acute fatigue, and prepare themselves to address the requirement for alertness when the body clock is in conflict with the railroad's need to move freight. While no single approach may work everywhere, neither should we miss the opportunity to transplant approaches that will work elsewhere on the National rail system.

NARAP has documented 23 specific projects that are now underway on railroads to evaluate or implement fatigue countermeasures such as napping strategies, mandatory days off, designated calling windows and other innovative approaches. Strategies are continuing to be evaluated, and the willingness of employees and railroads to try new approaches has never been higher. During 1998, FRA will place a major emphasis on the success of NARAP and SACP action plan items concerning employee fatigue.

New Approaches to Rulemaking

In 1994, we launched FRA's first negotiated rulemaking to address Roadway Worker Safety. We published a final rule in 1996 and implemented that rule on January 15, 1997. Well before the rule formally went into effect, it had been implemented voluntarily on most of the major freight railroads.

The success of the labor, railroad and FRA team that crafted the Roadway Worker Safety rule quickly became known in the industry. The stage was set, and on April 1, 1996, we were able to hold the first meeting of a new Railroad Safety Advisory Committee (RSAC). The structure and processes of the RSAC are unique. The full Committee is comprised of 48 party representatives, associate members from the governments of Canada and Mexico, and advisors from the National Transportation Safety Board and the Federal Transit Administration. Working groups and task forces are responsible for producing consensus recommendations that embody the wisdom of the employees, managers, suppliers and manufacturers who will implement them. At any given time, our working groups and task forces are comprised of almost 500 members. Their sponsor organizations pay for their time, travel and other expenses. They reflect the commitment of the industry parties to achieving consensus solutions to regulatory challenges. FRA is committed to ensuring that these results are achieved in a timely manner. I am very pleased that the working groups formed by this committee have begun delivering important products.

In 1997, FRA published a consensus Notice of Proposed Rulemaking (NPRM) for revision of the **Track Safety Standards**. Improvements in track safety are an FRA priority because more derailments are caused by track problems than by any other cause. Derailments threaten persons along the right-of-way, particularly when hazardous materials are involved. This proposal addresses several longstanding concerns with respect to management of continuous welded rail, internal rail flaw inspections, tightening of the “excepted track” provisions, improved switch inspections, and other issues. In addition, it specifies track-vehicle interaction limits for high-speed service. I recently submitted a final rule in that proceeding for review and clearance

within the Executive Branch. We expect further progress in the track arena as the RSAC considers use of the Gage Restraint Measurement System as a performance-oriented means of determining the gage-holding ability of crossties.

Last year the RSAC also produced a long-awaited NPRM on **Railroad Communications**, which addressed communications equipment and procedures for both trains and roadway workers. Miscommunication is a frequent cause of collisions. Effective communication capability is essential to providing for prompt emergency response when persons are harmed during railroad operations. FRA is preparing a final rule based on the RSAC proposal.

At our January meeting of the RSAC, our working group on Tourist and Historic Railroads presented a draft NPRM for revision of the **Steam Locomotive Standards**, which was approved by mail ballot just last week. This proposal incorporates recent NTSB recommendations for steam boiler safety and reduces regulatory burdens on small railroads that use these historic locomotives in infrequent excursion service.

At the January meeting, the Committee authorized us to circulate for mail ballot the forthcoming NPRM on **Locomotive Engineer Certification**. The working group has reached consensus on this proposal, and we are putting the final touches on the document and accompanying regulatory evaluation. The Committee has agreed to ballot by mail on this proposal, which addresses issues such as the NTSB's recommendation regarding improved tests for color blindness--an issue that arose out of the Secaucus accident. I want to thank Chairman Hall for lending us his staff physician and other experts who helped us find solutions in this and other RSAC working groups.

Meanwhile, in our collaborative forums for passenger rulemaking, 1997 brought an agreement on a final rule for **Passenger Train Emergency Preparedness**. We recently completed that final rule and submitted it for review and clearance within the Executive Branch.

Although we could not reach consensus on all items, we benefitted greatly from advice that we have received from the working group on **Passenger Equipment Safety Standards**, for which we have a final rule in preparation. The American Public Transit Association (APTA) has established the Passenger Rail Equipment Safety Standards Task Force (PRESS) to carry forward the development of private voluntary standards for passenger equipment. PRESS was formed with FRA encouragement to help develop standards that might be useful for incorporation into Federal regulations, as well as to complement those regulations with more extensive and detailed criteria than would be appropriate for use in regulations.

The work on passenger emergency preparedness and equipment safety will continue into a second phase of activity following issuance of final rules from the first phase this year. We are working closely with labor organizations, manufacturers, suppliers, commuter railroads, passenger associations, and Amtrak to deliver research products that are timely and useful for advancing passenger safety, and we believe the good will generated by our consultations to date will continue to yield important returns.

Other Regulatory Progress

I am proud that the railroad industry implemented requirements for **Two-Way End-of-Train Devices** last year. That rule was implemented 6 months ahead of the statutory deadline for freight railroads and one month early for small railroads. In fact, most of the freight railroads had this safety system in place for mountain grade territory by December of 1996.

The requirement for **Locomotive Alerting Lights** was fully effective on December 31, 1997, as required by law. These important rules have already paid off in lives saved and injuries prevented. Although this innovation is based on research that FRA commissioned in 1991, FRA issued the first interim regulation on this subject in 1994 in response to a 1992 legislative mandate that facilitated early regulatory action. The final rule required nearly all locomotives to be equipped with suitable auxiliary lights on December 31, 1997. In 1994, the railroad industry began to install additional lights on the front of locomotives, generally forming a three-light triangle instead of the single headlight. This application not only increases the brilliance of a train as seen from the front, but also provides a motorist or bystander a better conception of the size of the approaching object. FRA's benefit/cost analysis on this regulation conservatively projected a reduction in crossing accidents in the range of ten percent for equipped locomotives. Although several important initiatives have contributed to reductions in collisions at grade crossings of the past several years, the statistics follow this prediction.

Further, beginning in January of 1997, we started to collect more meaningful data on collisions, derailments and injuries under 1996 revisions to **Accident/Incident Reporting Regulations**. The new regulations emphasize use of internal control plans to ensure data available in all departments of the railroad makes its way into the report. The new regulations also provide better information on trespasser casualties, improve the usability of our passenger safety data sets, require clear policies that protect the right of employees to report job-related injuries without fear of retaliation, and make a number of other important changes to ensure we have the information we need to determine safety priorities.

During 1997, FRA also issued proposed rules for the **Florida Overland Express** project, which, if the State of Florida and the private investors are able to arrange financing (including "flexing" NEXTEA authority), will constitute the first ultra-high-speed rail system in the western hemisphere. Further, following through on plans that we made with the Northeast Corridor Safety Committee in 1994, we issued a proposed order for an **Advanced Civil Speed Enforcement System** on the Northeast Corridor, supporting increased densities and speeds up to 150 miles per hour by late 1999.

Building on the Successes of 1997

In 1998, the Railroad Safety Advisory Committee has before it much additional work that is important to safety. A task force of the Track Safety Standards Working Group is perfecting additional provisions that should permit the use of the **Gage Restraint Measurement System** to determine crosstie effectiveness based on performance criteria. Another task force is well on its way toward developing proposed safety standards for **On-Track Equipment** used in roadway maintenance.

The working group on **Locomotive Crashworthiness**, which began its efforts last September, has sharpened its focus and commissioned a series of research tasks that are scheduled to be completed this summer and will provide the foundation for a proposed rule.

The working group on **Cab Working Conditions** is developing standards for sanitation, noise, temperature and related issues. These are not easy matters, particularly with respect to older locomotives, but the group is eager to find solutions that work for employees who spend 8 to 12 hours in these workplaces every day, taking responsibility for precious passenger and freight cargoes, including hazardous materials.

We will stress vigilance and timeliness for these efforts, and I think you will gain, as I have, a growing respect for the collective wisdom and commitment to safety displayed by the large complement of expert participants in the RSAC process.

Although the RSAC could not reach agreement on revisions to the Freight Power Brake Regulations, some members of the group did express the view that existing rules work reasonably well and that further attempts at reform should set modest and achievable objectives. As we prepare a second NPRM on this topic, we are heeding this counsel. With two-way end-of-train devices already mandated, and passenger braking issues proceeding toward a final rule in that separate proceeding, the only issue remaining that involves a major NTSB recommendation (and that was specifically required to be addressed by the legislation mandating revision of the power brake rules) has to do with dynamic brakes. There is no safety criterion that can satisfy the desire to have dynamic brakes function well at all times. Indeed, dynamic brakes cannot be considered safety critical *as a first order system* precisely because they do not "fail safe." The manner or time of their failure cannot be predicted. Where dynamic brakes are relied upon for train handling, however, they should be maintained in working order, and any known failures should be communicated to crews. Given recent experience with cold weather operations, we are also reviewing what can be done to ensure effective power braking during extreme cold. We are working on these issues as we finalize the second NPRM for issuance.

Positive Train Control

In November of 1997, the RSAC also began an examination of Positive Train Control (PTC), a longstanding objective of everyone committed to railroad safety that has been on the National Transportation Safety Board's most wanted list. The task was accepted by the

Committee on September 30th, and the working group began its effort in November. The PTC Working Group has worked diligently to agree on PTC safety functions, explore the range of technologies that may be useful in addressing those functions, and begin the process of education with respect to what will be required to avoid unsafe failures in processor- and communication-based train control. The Implementation Task Force and a select team of experts are reviewing the collisions and other events that can be prevented using PTC systems of various types, and that work will be fed back into a corridor risk process that has been prepared as a tool for evaluating the types of rail operations that may benefit most from a PTC system. The Implementation Task Force will also prepare reports on the readiness of PTC technology, likely migration strategies (moving from current methods of operation to full PTC), costs of implementation, and related issues. A good foundation has been laid already for much of this work, including discussion of the safety benefits of PTC. However, in evaluating PTC investments we need to keep in mind that some PTC architectures can deliver other business benefits, such as increased capacity and improved asset utilization. Thus far, we have not been able to generate a good discussion of the business benefits of PTC. Although we recognize that these benefits will vary from company to company, FRA believes that they will be substantial. Further, I have no doubt that PTC systems implemented as good business investments will also yield strong safety benefits.

Meanwhile, the Standards Task Force will be producing an NPRM to broaden the kinds of train control systems addressed in our signal regulations, creating a more predictable environment for those developing and investing in PTC systems. I have every confidence that the excellent task force formed to work on these PTC safety standards will reach agreement on a proposed rule

that we can publish this year. If they are unable to do so, however, we have a draft rule that was prepared for the use of the task force that can be rather quickly turned into an NPRM.

In addition to moving PTC forward on the regulatory front, FRA is supporting PTC through technology demonstration and support of critical Federal policies. For instance, during 1997, the Federal Communications Commission completed a proceeding on "refarming" of radio spectrum that preserved and enhanced the capacity of spectrum dedicated to the Railroad Radio Service. FRA supported the industry's safety argument in that proceeding, and we will continue to advocate the public safety importance of adequate capacity for railroad voice and data transmissions. Contemporary concepts for PTC systems rely heavily on wayside-to-train communications using digital radio.

The President's Budget for FY 1999 includes a second year of funding to continue deployment of a national differential correction service for the Global Positioning System ("NDGPS"). NDGPS will complete the existing Coast Guard system for harbor and marine navigation, filling the inland gaps and upgrading the system to provide strong, redundant coverage adequate to support a variety of surface radionavigation needs, including train location within PTC. FRA is sharing the lead on this project with the United States Coast Guard, and the United States Air Force will be contributing tower installations as it retires the cold-war-era Ground Wave Emergency Network in a classic "win-win" example of defense conversion.

Demonstrating PTC

FRA has provided technical assistance to the Union Pacific and Burlington Northern Santa Fe on their Positive Train Separation (PTS) pilot project in the Pacific Northwest, and FRA joined the State of Michigan in funding installation of an Incremental Train Control System supporting high-speed service on Amtrak's portion of the line between Detroit and Chicago. I think we will see the Michigan system "cut in" for revenue service this year, and PTS testing will be concluded in 1999. In 1997, FRA provided $2 million to the Alaska Railroad to enable them to start a four-year program to install Positive Train Control on their entire railroad, which currently has no signal system in place and is dispatched by voice radio.

Now is the time to plan for the future. The Western railroads view the PTS pilot as a stepping stone and safety foundation for more capable Positive Train Control Systems that can address train pacing, capacity optimization, and other important business goals. Yet, there is no question that change in the railroad industry has created distractions that have delayed investment in PTC. What we need is action to deploy, in a meaningful revenue demonstration, a form of PTC suitable for wide-scale application on the general rail system. We need to break the ice, because change requires courage and vision.

Recently we announced that the major railroads, through the Association of American Railroads (AAR) Board, have joined with FRA and the State of Illinois DOT (IDOT) in a public/private partnership to develop and demonstrate full central Positive Train Control in revenue service. Secretary Slater and I were both able to attend the AAR Board meeting at which this agreement was approved. The demonstration territory will be the part of the former Southern Pacific Chicago-St. Louis line north from Springfield to Mazonia, Illinois. This is the line that is

now owned by UP, where IDOT, Amtrak, and the freight railroads have already been cooperating to improve passenger trip times.

The AAR Board voted to invest $20 million over the next four years, matching $15 million already available to FRA and IDOT, for a revenue service PTC demonstration that will ultimately include flexible block operation. The FRA funding for this project comes from the Next Generation High Speed Rail Program (NGHSR). Participation of the major railroads creates the possibility of integrating the Illinois effort with the effort underway by Conrail, CSXT, and Norfolk Southern--and supported with partial funding from FRA-- to accomplish interoperability by describing an onboard computer platform that can communicate with various PTC systems on the wayside. This is a new and critical beginning, but we need to be realistic in recognizing that the technical challenges are substantial.

Safety at Highway-Rail Crossings; Trespass Prevention

The Challenge

Annually, fatalities caused by collisions between automobiles, trucks, and trains, and fatalities resulting from people being illegally on railroad property and tracks usually account for more than 90 percent of all railroad-related deaths. Every day, people attempt to beat the train to the railroad crossing and continue to jog, ride their bikes or walk on railroad property, needlessly endangering their lives as well as the lives of train crewmembers and passengers.

Annually, nearly 1,000 people die as a result of avoidable car/truck/train collisions at highway-rail crossings and preventable trespassing incidents. As a result, nearly every 100 minutes someone in America is hit by a train. FRA's goal is to ***prevent*** collisions at highway-rail crossings and trespassing on railroad property.

Lifesaving Results

In 1994, DOT, along with Members of Congress, unveiled the *Rail-Highway Crossing Safety Action Plan.* The *Action Plan* is a visionary policy architecture for achieving our goal of zero tolerance of highway-rail crossing collisions, fatalities and injuries. It is an ambitious national transportation goal, but one that clearly emphasizes that safety is our top priority. The multimodal endeavor brings together the valuable resources of the Federal Highway Administration (FHWA), National Highway Traffic Safety Administration (NHTSA), Federal Transit Administration (FTA), and FRA to create and implement innovative initiatives in enforcement, engineering, education, research, public awareness and legislation to save lives at highway-rail crossings and along railroad rights-of-way.

Since the *Action Plan*'*s* inception in 1994, there has been a significant five-year downward trend in fatalities. Between 1995 and 1996, America achieved the greatest increase in highway-rail crossing safety with a dramatic 18 percent decline in fatalities and collisions. Projections from preliminary statistics for 1997 indicate a further reduction in fatalities of approximately 7 percent. At the Department, ***these are more than mere statistics -- these are actual lives saved***. This overwhelming success highlights the tremendous progress made, since 1994, in raising national awareness about safety at highway-rail crossings.

From the beginning, FRA expanded the safety partnership to include everyone in the transportation safety industry -- *making safety everyone*'*s business.* We also know that the key to preventing car/truck/train collisions and trespassing is working with communities to promote our life-saving messages.

As part of FRA's commitment to saving lives, the team successfully coordinated with the AAR, Operation Lifesaver, Inc. (OLI), FHWA, FTA and NHTSA to incorporate the "*Highways or Dieways*" and "*Always Expect A Train*" public education campaigns as significant components of the Department's "*Moving Kids Safely*" and "*Safe Communities*" programs. The campaign focuses on raising awareness about the deadly consequences of trying to beat a train to a crossing and trespassing on railroad property. The campaigns have reached citizens in all 50 States via 270 television and cable markets, 673 radio markets and 200 publications. The "Always Expect A Train" campaign continues to air in Spanish and English every day throughout the Nation.

Working with Operation Lifesaver, a non-profit national organization devoted to preventing crossing collisions and trespasser fatalities, FRA was an active participant in the Department's *Safe Communities* traffic safety program, the *Garret A. Morgan* education initiative, and the *Moving Kids Safely* child safety campaign, promoting FRA's lifesaving message throughout the Nation, reaching diverse audiences in all 50 States.

In a related initiative, FRA developed an interactive community safety and education resource Internet Web Page. The program provides exciting and innovative multimedia information to community leaders, teachers, students, and parents on rail safety, technology development, history, and career opportunities and development. The site contains an interactive classroom area for use by teachers that provides lesson plans, publications, games and teaching resources that convey our lifesaving message.

One of the most important partnerships is with law enforcement. Partnering with the International Association of Chiefs of Police, FRA created a ticket jacket for use by local officers when ticketing trespass offenders. The ticket holder has valuable information that raises

awareness about the dangers of trespassing. More than 2,000 were distributed to local police throughout the Nation and during separate conventions sponsored by the Fraternal Order of Police and the National Sheriffs' Association.

In the aftermath of the tragic collision between a school bus and a commuter train at a crossing in Fox River Grove, Illinois in October 1995, the Department partnered with Operation Lifesaver to develop a school bus driver training program, *The Responsibility is Ours*, to raise awareness about crossing safety. During 1997, the program was distributed to all State departments of education and transportation. As an additional response to Fox River Grove, the Department established an intermodal task force and called on national crossing safety experts to assist in addressing several issues that had not been fully developed in the 1994 *Action Plan*, including interconnected signals and storage and high-profile crossings. In 1996, the task force issued recommendations in its first report to the Secretary, entitled *Accidents That Shouldn't Happen.*

In June 1997, the Department issued a status report on the implementation of the original recommendations. It cited the success the task force achieved in fostering greater communication between Federal, State and local governments, railroads and transit agencies and in ensuring similar incidents never occur.

One of the most successful on-going programs is the Highway-Rail Crossing and Consolidation Program. The safest and most efficient way to reduce crossing collisions is by eliminating and consolidating highway-rail crossings. In 1991, FRA established a goal to close 25 percent of the Nation's crossings. Last year, 2,955 crossings were reported closed. To date, the total number of public and private crossings has been reduced 27,118 (9.3 percent) to a total of

265,721. While closures occur due to a variety of reasons, aggressive efforts across the country are getting results in the form of closures of hazardous and unnecessary highway-rail crossings.

In a related initiative, FRA partnered with the Western Governors' Association to improve rail safety throughout Western communities and work to eliminate redundant crossings. FRA assisted in providing information for a reference guide on traffic safety and transportation efficiency that will be used by local communities.

During 1997, the first FRA workshop was held regarding *Rails-with-Trails*. Participants included Federal, State and local government officials, railroads, and interest and civic groups. FRA is currently working to develop a national policy to assist communities with their transportation and recreational development planning.

In an effort to increase trespass prevention, **a model State law for trespass and vandalism prevention was developed and disseminated to all 50 State Governors and State Secretaries of Transportation, the Congress, law enforcement agencies and transportation-related associations**. FRA will be following developments in State legislatures and has already been called upon by a State legislature to provide testimony on the code's proposed adoption.

FRA also assisted in the creation of the National Cooperative Highway Research Project Legal Research Digest report titled, "Photographic Traffic Law Enforcement." The report provides communities information on the effectiveness of placing cameras at crossings to monitor driver behavior, as an enforcement tool and as a deterrent to trying to beat the train to the crossing. The report was widely distributed to key transportation officials.

FRA has also been working on a "1-800" emergency notification system for highway-rail crossings. We had initially explored a State-based notification approach to grade crossing signal

malfunction reporting using an automated system. Later, direction from the Congress highlighted the need to focus on emergencies at both actively and passively signed crossings. Meanwhile an increased level of awareness among the major railroads, which we have encouraged through the SACP process, has led to establishment of railroad-based programs for emergency notification that are quite extensive and growing. We are now evaluating whether more rapid expansion of the 1-800 concept could be achieved taking a railroad-based strategy rather than a State-by-State approach.

These are just samples of the many accomplishments achieved through an active and broad-based partnership led by the community-based activities of FRA's eight Highway-Rail Crossing Safety and Trespass Prevention Program Managers. Each manager performs daily outreach to several States and serves as a point of contact for communities on various rail and intermodal safety initiatives.

Since 1994, when the original Regional Crossing and Trespass Prevention Manager positions were implemented and the *Action Plan* was announced, there has been a significant downward trend in crossing collisions and casualties:

Year	Fatalities	Percent Change from Previous Year	Injuries	Percent Change from Previous Year	Collisions	Percent Change from Previous Year
1993	626	+ 8.1	1,837	- 7.0	4,892	-0.37
1994	615	- 1.7	1,961	+ 6.8	4,979	+1.78
1995	579	- 5.9	1,894	- 3.6	4,633	-6.95

1996	488	-15.7	1,610	-15.0	4,257	-8.12

These statistics highlight the tremendous progress made in saving lives and raising awareness about safety at highway-rail crossings nationwide. Unfortunately, fatalities to trespassers increased by 13 percent from 1996 to 1997. To leverage similar successes we have achieved in crossing safety, additional resources are needed to identify and carry out our trespass-prevention messages and programs to targeted audiences.

Because of the vast territory that each manager must cover, and the overwhelming demand for assistance by local communities, FRA is able to accommodate only a fraction of the requests for assistance. Every lost opportunity to promote highway-rail crossing safety and trespass prevention is a lost opportunity to save lives. In a moment, I'll refer to our budget request and the manner in which we propose to address this need.

ISTEA to NEXTEA

As we all said last year, *this* is the year for reauthorization of ISTEA. It is particularly important that we keep a sharp focus on continued Federal leadership in highway-rail crossing safety. The Administration proposal--NEXTEA--calls for reauthorization of the Section 130 program, which provides the major source of funds for crossing safety improvements. Since its inception, the Section 130 program has saved more than 9,000 lives and prevented nearly 40,000 injuries. Our analysis indicates a 17-to-1 benefit/cost ratio over 20 years for continuation of this program.

The price of discontinuing this modest program of investment in safety ***would be*** a gradual reversal of the downward trend in crossing collisions. Train miles and motor vehicle miles continue to rise, and the number of crossings where active warning systems are needed would continue to grow.

Reauthorization of ISTEA must address highway-rail crossing safety in a meaningful way. NEXTEA provides new funding flexibility for crossing safety purposes. It retains 100-percent funding eligibility for projects which close or eliminate one or more crossings, and retains the $7,500-per-crossing bonus program eligibility for communities that close crossings when the bonus is matched by the railroad.

In addition to carrying forward Federal leadership for crossing safety, it is important that the reauthorization of ISTEA incorporate flexibility to address public purposes in the rail mode, benefitting safety, economic growth, and a sound environment for all of us.

In April 1997, Secretary Slater sent to Congress a proposed bill, the "Surface Transportation Safety Act of 1997," which was intended to be included as a part of NEXTEA. That bill contained several provisions related to railroad safety. One portion of the bill would substantially strengthen criminal sanctions for terrorist and other violent acts committed against railroads, passengers, and employees. These sanctions have not been updated for decades and need to be amended to ensure that they are applicable to all forms of modern terrorism. The bill would also clarify the manner in which FRA and the Federal Transit Administration will guarantee that safety considerations are weighed in making grants or loans to commuter and other railroads subject to FRA's jurisdiction. The bill would also eliminate the requirement that railroads file monthly, notarized accident reports; instead, the bill would permit the Secretary to specify the

reporting frequency and permit electronic filing of reports. I note that Senator McCain and Senator Hollings both introduced bills (S. 1267 and S. 1234, respectively) last year that largely embody the Department's proposals on these issues. I urge the Committee to act on these proposals this year.

President's Budget

Next month, I will have the opportunity to testify before the appropriations committees on the President's Budget for FY 1999. This budget request recognizes that FRA's safety responsibilities continue to grow, in part due to fulfillment of statutory mandates and also because outreach through our partnerships helps to identify opportunities for new safety improvements. Progressive safety standards and special programs are necessary to ensure reductions in fatalities, injuries and property destruction. However, completion of each new regulatory initiative yields a further substantial workload in training FRA and State inspectors, structuring compliance reviews, establishing and monitoring reporting systems, providing training and assistance to small railroads, handling requests for waivers, responding to complaints, issuing uniform and consistent guidance in response to requests for interpretations, taking enforcement action where needed, responding to numerous questions from auditors, and reviewing regulations for effectiveness and currency.

As I have noted, the pace of technological change in the railroad industry appears to be increasing as the industry strives to play its critical role in a balanced transportation system. Positive train control systems are being developed and tested. Electronically controlled braking is on the verge of acceptance. New types of equipment are being introduced to handle various types of traffic or to conduct maintenance operations more efficiently. The most visible type of new equipment to the public will be high-speed trainsets. Systems approaches to safety are necessary

to address these new technologies. If FRA lacks the capability to support improved and expanded rail passenger service through issuance of appropriate standards that enable technological progress, the Nation will pay the price through higher highway casualties, increased road congestion, and increased air pollution.

In order to continue FRA's present safety activities, adequately address new challenges, and further improve the overall safety of the railroad industry, FRA is requesting a $4.9 million increase in railroad safety funding in FY 1999. These funds will increase the number of safety employees by 32 and will fund related support costs to strengthen FRA's safety inspection programs, bridge safety program, RSAC, SACP, and other safety initiatives. Included in this request are eight additional field positions to assist the Department's regional offices in addressing grade crossing safety and trespass-prevention efforts, working with railroads, States, and communities to find solutions that work.

Our request also includes important funding for safety research and development. Attached to my prepared statement is a brief abstract that describes our current safety research and the role our Office of Research and Development plays in direct support of regulatory development and safety assurance activities.

Conclusion

In the near future, we hope to transmit to you the Administration bill for reauthorization of the railroad safety program. Although I am not able to go into the details today, I do want you to know that we are looking for ways that the legislative process can support positive change.

Madam Chairman, with the continued support of the Congress, FRA will pursue our goal of zero incidents, zero injuries, and zero deaths. We will seek to be visionary and vigilant in

helping create a Department of Transportation that makes safety, sound investment in infrastructure, and common sense government the principles by which we live and work. Thank you for the opportunity to tell part of our story today, and please call on us to assist as you develop and refine legislation in the coming months.

Attachment 1

NATIONAL INITIATIVES FOR 1998
INTERMODAL HIGHWAY-RAIL CROSSING SAFETY
AND TRESPASS PREVENTION PROGRAM

Public Awareness

Create focused intermodal outreach effort to raise awareness similar to programs promoting air bags, child seats & seatbelts -- Operation Lifesaver, *Always Expect A Train* and *Highways or Dieways - The Choice is Yours.*

Commercial Driver's License (CDL)

Make violation of crossing-related laws a serious CDL infraction. Educate truck drivers about the dangers of hump crossings and what action to take if their trucks become hung up. Install FHWA approved (January 9, 1997) Hump Crossing signs at crossings. Increase coordination between emergency responders and railroads.

Crossing Corridor Review

Apply team approaches to conducting crossing corridor and Section 130 process reviews.

STOP Signs

Along with crossbucks, install STOP signs at grade crossings without automatic warning devices with two or more trains per day. There is a 35 percent reduction of collisions when STOP signs are properly installed at crossings.

Trespass Prevention

Promote FRA's model State legislation to discourage railroad trespass and vandalism. Every State has received copies, along with a letter from Secretary Slater (April 17, 1997), recommending they enact the bills "in order to reduce deaths, injuries, and property damage caused by trespassers and vandals on railroad property."

Crossing Elimination

Federal funding is available from FHWA under Section 130 to assist in funding crossing improvements. Ultimately, however, it is each State's responsibility to decide which crossings will be enhanced, separated or closed. FRA will continue to target corridors where safety improvements can be achieved through selective consolidation of crossings and targeting of resources to improved warning systems and other improvements at those that remain.

Safe Quiet Zones

Assist communities impacted by the forthcoming proposed rule requiring use of the train horn as an audible warning device to plan for quiet zone implementation. Develop innovative strategies for crossing safety that can be used in a variety of contexts.

Attachment 2

FRA'S RESEARCH AND DEVELOPMENT PROGRAM

FRA's Research and Development program is aimed at promoting and improving the safety of all aspects of our national railroad transportation system, freight, intercity passenger, and commuter rail. The program has ten objectives:

1. Reduce human factor accidents
2. Detect rolling stock defects and improve rolling stock performance
3. Detect and prevent track and structures defects
4. Enhance track/train interaction safety
5. Prevent train collisions and overspeed accidents
6. Prevent grade crossing accidents
7. Improve safety of hazardous materials transportation
8. Improve protection for occupants of trains
9. Improve safety of high-speed ground transportation
10. Improve R&D facilities and test equipment

There is an R&D program area that addresses each of these objectives. Following is a description of the 1998 activities planned for each program area:

1. Human Factors - In 1997, there were several significant railroad accidents that were caused by human factors-related issues such as dispatcher errors and crew fatigue. These issues had already been identified as projects to be aggressively pursued in the 1998 R&D Program. Work on mitigation strategies for locomotive crew stress and fatigue began in 1997 and will continue in 1998. Similarly, research on workload, stress, and fatigue affecting train dispatchers and yard and terminal workers will continue in 1998. Human factors projects are among the highest priority projects in the Office of R&D.

2. Rolling Stock and Components - Work on improved roller bearing wayside inspection techniques continues, with initial research results to be published in 1998. Evaluation of the safety of electronically controlled air brakes, both hard-wired and radio-controlled versions, continues, and a report of preliminary findings will be issued. A new project to address failure mechanisms of commuter car wheels begins in 1998, and projects to develop wayside and on-board detection systems will continue.

3. Track and Structures - In 1998, plans are to have an improved understanding of growth rates for a newly-discovered rail flaw type that is initiated by heavy axle loads. This knowledge will be applied to improve track inspection protocols. Integration of instrumentation systems on FRA's track geometry inspection vehicle to permit real-time assessment of track safety condition and

maintenance needs will be undertaken in 1998. An assessment of the feasibility of vehicle-borne devices for detecting broken and misaligned rail will begin in 1998.

4. Track/Train Interaction - New initiatives in 1998 address the automatic correlation of track geometry with derailment forces on wheels and rail, and an evaluation of the effect of high-adhesion locomotive forces on track safety. In 1998, a report will be issued on the use of newly-integrated track and vehicle models to develop new methods and rules for rating the safety of track conditions. Performance of railroad bridge approaches will be evaluated under 125-ton cars at a recently-built facility at the Transportation Technology Center, and a preliminary report will be issued.

5. Train Control - In 1998, the second year of the joint Conrail/CSX/Norfolk Southern Harrisburg - Manassas Positive Train Control project will be funded. Norfolk Southern, rather than Conrail, will be the recipient of the funds, which, when combined with railroad funds, will be used to procure and install prototype hardware on several locomotives. Work will begin on the Nationwide Differential GPS network in 1998, with 6 US Air Force GWEN sites to be converted to DGPS sites, 3 in place, and 3 at new locations. Support of RSAC activities regarding PTC will continue in 1998 and should include the publishing of final reports on corridor risks and business benefits.

6. Grade Crossings - Development of evaluation plans for testing of devices and systems for high-speed crossings will be carried out in 1998, along with the evaluation of obstacle/intruder detection systems for high-speed crossings. Work on crossing signal issues should be completed at the Transportation Technology Center, and a report issued, during 1998. Research into motorist perception of risks will continue with the addition of studies of driver behavior in commuter rail territory.

7. Hazardous Materials - Research projects for non-destructive evaluation devices and techniques will continue in 1998, as will projects on damage tolerance analysis techniques and evaluation of tank car materials of construction to determine critical areas and critical flaw sizes. Reports on these activities will be issued in the course of the year. New projects will be initiated to improve tank car integrity through improved design, inspection, testing, and evaluation of the cars, improved monitoring of acceptable defects and damage, and improved field damage assessment. Reports on these activities will be issued in 1999.

8. Safety of Train Occupants - The major effort in 1998 in this program area is to support the rulemakings related to passenger equipment. To this end, criteria for rail passenger car dynamic performance will be validated through a series of full-scale tests with donated equipment at the Transportation Technology Center. In addition to verifying the results of analytic studies of locomotive fuel tanks and cab car crashworthiness carried out previously, small-scale component testing will be conducted in 1998. A major effort will be undertaken in 1998 to address commuter rail safety, particularly car crashworthiness, and occupant protection. Studies on the

efficacy of seat belts for rail car passengers will be completed in 1998 and a report will be prepared.

9. Safety of High-Speed Ground Transportation - In 1998, technical evaluation of the Florida Overland eXpress (FOX) high-speed rail system and the Amtrak American Flyer trainsets will continue as in 1997. Work on updated fire safety guidelines and evaluation methods will be completed and a report issued. Passenger seat impact testing and evaluation will be completed. An assessment of electromagnetic fields associated with FOX and American Flyer operations will continue, and a report will be issued in 1999.

10. R&D Facilities and Test Equipment - Reroofing of 3 support buildings, upgrading of the emergency vehicles used for ambulance and fire-fighting services, replacement of a mobile crane, and expansion of track infrastructure at the Transportation Technology Center at Pueblo, Colorado, will take place in 1998, along with the rehabilitation of the wheel trueing machine and some laboratory instruments. High-speed rail safety test equipment and equipment to do noise evaluation of an American Flyer trainset will be installed at the Transportation Technology Center to prepare for testing in 1999.

As a result of our SACP program and the analysis of problems at the Union Pacific and CSX, we have determined that we need to add a new program area to our R&D program this year, and that area is **System Safety**, addressing both freight and commuter issues. Possible topics for research include: safety implications of railroad databases; systems dynamics studies; complexity theory and its implications for management of larger railroads; critical infrastructure protection issues; and safety/economic tradeoffs.

R&D managers and staff have served on and provide technical information to FRA's Fatigue Countermeasures Team and to the following RSAC working groups: Positive Train Control, Passenger Equipment Safety Standards, Locomotive Crashworthiness Standards, Locomotive Cab Working Conditions, Steam Locomotive Inspection Standards, Power Brake, Track Safety Standards, and High-Speed Track Safety Standards. This insures that our R&D program is responsive to the needs of FRA's safety program and that research results in the areas covered by RSAC are being applied in a most timely fashion.